- Integrate environmental data interpretation and statistics.
- Exchange sound environmental data with all of our partners.
- Engage in more frequent dialogue with state, local and Indian tribal governments, and improve the exchange with them to produce more sound environmental data and tools.
- Consolidate information and reduce duplication of information provided to EPA under a variety of statutory and regulatory authorities.
- Improve electronic access to information by significantly expanding the type and amount of information available on the Internet.
- Continue international collaboration on developing health and environmental effects data.
- Ensure citizen access to the compliance and enforcement records of regulated facilities so that communities can easily monitor whether these companies are in compliance with environmental laws and permit conditions.

Another strategy is contained in the President's Environmental Monitoring for Public Access and Community Tracking (EMPACT) Initiative. This initiative includes other federal agencies and will focus on improving data collection and data quality and on deploying new technologies for real time and automated measurement, monitoring, and information delivery. EMPACT will be targeted to the 75 largest metropolitan areas in the U.S.

Performance Measures

The success of the Right-to-Know programs is ultimately determined by the increased understanding of our environment among all stakeholders, thereby enabling them to make decisions and take actions in helping to solve the nation's environmental problems, particularly at the community level. EPA is playing a major role in educating and providing the data and tools tailored to the needs of various stakeholders. Measures to assess our progress in achieving this goal focus on three areas--information access, stakeholder awareness, and the improved environmental conditions in targeted areas. We assume there is a cause-effect relationship among the three. Since there are many actions outside EPA's control, we would want to choose the measures aimed at EPA's actions. For example, we will assess the number of people who access EPA information and whether they find the information useful; the level of awareness of our information among various stakeholder groups, as measured by surveys and other instruments; and the improvement of environmental conditions in targeted areas, including reduced releases of toxic chemicals.

GOAL 8: Sound Science, Improved Understanding of Environmental Risk, and Greater Innovation to Address Environmental Problems

EPA will develop and apply the best available science for addressing current and future environmental hazards, as well as new approaches toward improving environmental protection.

Importance of This Goal

Science enables us to identify the most important sources of risk to human health and the environment, and by so doing, informs our priority-setting, ensures credibility for our policies, and guides our deployment of resources. It gives us the understanding and technologies we need to detect, abate, and avoid environmental problems. This goal recognizes that science provides the crucial underpinning for EPA decisions and challenges us

to apply the best available science and technical analysis to our environmental problems and to practice more integrated, more efficient, and more effective approaches to reducing environmental risks.

It is clear that, in the future, environmental problems will be dealt with in a different manner than they are today. In moving towards this future, EPA has adopted a two-tiered strategy. On one level, EPA is working to strengthen those features of the current system that have proven to be effective. At a second level, EPA is designing and testing fundamentally new tools and approaches that take advantage of new scientific knowledge and technological advancements, a growing ethic of environmental stewardship, the need to cut waste and increase efficiency and similar opportunities as they arise in society. These new tools and approaches are largely industry-based, place-based, and performance-based.

Objectives

- Research for Ecosystems Assessment and Restoration: By 2008, provide the scientific understanding to measure, model, maintain, or restore, at multiple scales, the integrity and sustainability of ecosystems now and in the future.
- Research for Human Health Risk Assessment: By 2008, improve the scientific basis to identify, characterize, assess, and manage environmental exposures that pose the greatest health risks to the American public by developing models and methodologies to integrate information about exposures and effects from multiple pathways.
- Research to Detect Emerging Risk Issues: By 2008, establish capability and mechanisms within EPA to anticipate and identify environmental or other changes that may portend future risk, integrate futures planning into ongoing programs, and promote coordinated preparation for and response to change.
- Research for Pollution Prevention and New Technology for Environmental Protection: by 2006, develop and verify improved tools, methodologies, and technologies for modeling, measuring, characterizing, preventing, controlling, and cleaning up contaminants associated with high priority human health and environmental problems.
- By 2005, EPA will increase the number of places using integrated, holistic partnership approaches, such as community-based environmental protection (CBEP), and quantify their tangible and sustainable environmental results in places where EPA is directly involved.
- By 2005, EPA will increase the number of opportunities for and applications of sector-based approaches to environmental management by 150 percent over 1996 levels.
- By 2005, Regions will have demonstrated capability to assess environmental conditions in their Region, compare the relative risk of health and ecological problems, and assess the environmental effectiveness of management action in priority geographic areas.
- Conduct peer reviews and provide guidance on the science underlying Agency decisions.

What Will Be Accomplished

EPA's research program will measurably increase our understanding of environmental processes and our capability to respond to and solve environmental problems. During the past decade, significant concerns have been expressed about the adequacy of the Agency's ability to assess risks--not only to human health, but also to ecosystems. Research will lead to greater certainty in assessing and comparing environmental risks. Our aim is to reduce major areas of uncertainty in our analyses of risk and to minimize reliance on default assumptions. In order to accomplish this, we will develop improved exposure

assessments that identify environmental exposures posing the greatest health risks to the American public and will increasingly use biologically-based methodologies. We will demonstrate improved knowledge of current ecosystem conditions and the most critical stressors affecting these conditions, as well as deliver improved capabilities to interpret what these conditions imply in terms of immediate and future risks. This will provide strengthened capability to determine the condition of the environment and its responses to alternative management strategies at local, regional, and national scales. This will also lead to better technologies to manage and restore ecosystems.

We will also build institutional capacity to forecast and prepare for emerging problems. To prevent damage to both human and ecosystem health, it is critical to detect, describe, evaluate, and mitigate or eliminate stressors before damage occurs. We plan to improve capacity and technology to monitor and model stressors and effects. We plan to encourage the rapid acceptance and implementation of improved environmental technology by assessing and verifying the performance characteristics of commercially ready technologies and by making those assessments available for consideration by a variety of potential technology users. This will help provide proven, cost-effective technologies and approaches to prevent or manage environmental problems.

The Agency plans to strengthen the science base of the Regions by increasing their capacity to monitor and measure environmental conditions. We also plan to strengthen our overall quality of science by significantly enhancing peer review in the Agency and by seeking guidance from the Science Advisory Board, leading to more defensible environmental decisions.

Since scientific quality and cost-effectiveness are generally increased through collegial interaction, the Agency plans to increase its "partnering" with other Agencies and organizations, especially in joint efforts through the National Science and Technology Council, and in more frequent collaboration with NASA, NSF, and DOE. Similar synergistic benefits are sought through joint participation in the peer review of Agency documents and positions by advisory committees from different departments and agencies.

Regional geographic initiatives are targeted towards high priority locations with both high health or ecosystem risks and significant potential for risk reduction. We will continue to implement multimedia solutions, using integrated partnership approaches, to address air, water and toxic waste problems and achieve living resource protection. Our efforts will promote state-of-the-art environmental management and serve as incubators and developers of innovative approaches to environmental policy making. Through Community-Based Environmental Protection, EPA will increase the number of places using innovative, multimedia approaches to enable local partnerships to address high risks. Through such programs as the Common Sense Initiative, the Agency will implement Sustainable Industry sector-based policies and programs. These new approaches will likely become the predominant form of environmental protection in the next century, and lead to greater acceptance of new environmental technology.

Most of these objectives will not be fully met until a decade has passed. However, as the science moves forward, various research sub-products are created that will be incorporated into EPA's decision-making process.

Strategies for How It Will Be Accomplished

EPA has several strategies to strengthen its science base and to develop innovations in environmental protection. The Agency has implemented a risk-based research planning process to use risk assessment and risk management as principal priority-setting criteria. EPA conducts annual research program reviews to both evaluate the status and accomplishments of its research and determine strategic planning priorities. To better draw upon the expertise of the environmental academic community, EPA created the Science to Achieve Results (STAR) Program of peer reviewed, mission-driven extramural grants. The Agency is also working with the National Research Council to identify emerging environmental issues for which we must begin planning the necessary research.

Reinvention of environmental protection involves rethinking specific steps of the regulatory process, such as setting standards and writing regulations, issuing permits, collecting environmental reports about pollution, providing assistance to help business comply with the law, and conducting enforcement actions. Among our newer integrated and innovative strategies for environmental protection are the place- and facility-based approaches of the Community-Based Environmental Protection (CBEP)

strategy, and sector-based strategies such as the Common Sense Initiative (CSI). CBEP is a way for EPA to work with knowledgeable and committed governments, organizations and individuals in specific communities and to benefit from their knowledge of their local environmental problems. CBEP can also provide flexibility to achieve more environmental protection in a more cost-effective manner. Similarly for industries, sector strategies such as CSI are designed as integrated, multimedia approaches. CSI works to tailor efforts to the particular characteristics of a particular industry, leading to more cost-effective environmental protection. EPA's reinvention agenda includes opportunities for testing innovative approaches to getting environmental results through programs such as CSI, Project XL, and One-Stop Reporting. EPA, working with state environmental programs, will adopt specific reforms for each part of the regulatory system based on successful results from these experimental programs.

EPA is promoting more cost-effective environmental protection by working with stakeholders to identify and overcome barriers, such as the lack of credible, independent performance data, that limit the entrance of new technologies into the environmental marketplace. Finally, because our decisions on rulemaking, policies, and actions to protect human health and the environment invariably rely on environmental measurements, the Agency will continue to implement its mandatory Quality Assurance Program. This program will ensure that all environmental measurements produced or funded by the Agency are of a level of quality suitable for their intended use.

Performance Measures

As environmental problems are better defined, and prevention and clean-up technologies are improved and evaluated, it will become easier to measure and demonstrate cheaper environmental protection. The various community, facility and sector-based approaches that provide flexibility for voluntary local initiative and innovation, and are tailored to the specific needs of a place or an industry, should improve decision-making, avoid conflict between competing uses and lead directly to more cost-effective environmental protection.

Over that period of time, specific outputs have been identified, such as models, tools, local capacity, cross program and sector partnerships, published reports and guidelines and demonstration projects. Certain tangible environmental outcomes related to the environmental health, vitality and quality of specific ecosystems or geographic regions and reduced emissions for facilities and sectors will be measured.

Scientific research involves efforts whose outcomes are inherently difficult to measure. Nevertheless, in addition to specific measures to track our success in meeting research objectives, we also have identified more general science performance criteria, including quality, relevance, and impact on decision making. Against these criteria, the following goals and measures will serve to evaluate the results of our research program.

Quality

The performance goal is for EPA's research science to advance the state of the science or make new contributions. Performance measures include:

- Endorsement by peer review and other impartial, outside reviewers.
- Demonstrated leadership of EPA scientists as evidenced by invitations to participate in conferences and conduct reviews.
- Publication of results in appropriate, peer-reviewed journals.
- Adoption of EPA-developed approaches or methodologies as models.
- Awards/recognition for research contributions.

Relevance

The performance goal is for EPA's research to successfully meet the needs of users of the results. Performance measures include:

- Research addresses critical knowledge issues within EPA's mission.
- Research findings provide the information necessary for EPA users to meet statutory requirements and other policy needs.
- EPA's decision-making options are informed and supported by quality science.
- Quality of science in EPA decisions is not challenged or withstands such challenges.

- EPA research findings are incorporated into new research.

Impact on Decision Making

The performance goal is for EPA's research organization to transfer information, findings, and results effectively to users, partners, and the public. Performance measures include:

- Technical results are disseminated in a timely way to users.
- Research is communicated appropriately in formats accessible to a variety of audiences and users in their decision making.

For specific objectives under the sound science goal, the following illustrates an appropriate performance goal and measure:

- By 2005, decision makers and the public will be able to monitor, assess and interpret the degree to which land cover has changed over time.
- The value added by the Science Advisory Board (SAB) will be measured by increased customer satisfaction, decreased time for report production and Agency responses to SAB recommendations.

Goal 9: A Credible Deterrent to Pollution and Greater Compliance with the Law

EPA will ensure full compliance with laws intended to protect human health and the environment.

Importance of This Goal

Protecting the public and the environment from risks posed by violations of environmental requirements is, and always has been, basic to EPA's mission. Many of America's environmental improvements over the last 25 years are attributable to a strong set of environmental laws and an expectation of compliance with those laws. EPA's strong and aggressive enforcement program has been the centerpiece of efforts to ensure compliance, and has achieved significant improvements in human health and the environment. To meet the challenges presented by the continuing, serious, and complex environmental problems EPA faces and the changes in the type and scope of activities and entities regulated, EPA must continue to use and develop a broader range of solutions. To this end, EPA is developing additional tools and capabilities for ensuring compliance through assistance and incentives to the regulated community.

By ensuring compliance through an array of traditional and innovative approaches EPA is working to mitigate and avoid risks to human health and the environment, help the regulated community understand and fully comply with